WHAT IS CLAIMED IS:

1.   A turbine bucket including a bucket airfoil
having an airfoil shape, said airfoil having a nominal
profile substantially in accordance with Cartesian
coordinate values of X, Y and Z set forth in Table I
wherein the Z values are non-dimensional values from 0 to
1 convertible to Z distances in inches by multiplying the
Z values by a height of the airfoil in inches, and
wherein X and Y are distances in inches which, when
connected by smooth continuing arcs, define airfoil
profile sections at each distance Z, the profile sections
at the Z distances being joined smoothly with one another
to form a complete airfoil shape.

2.   A turbine bucket according to Claim 1 forming
part of a fourth stage of a turbine.

3.   A turbine bucket according to Claim 1 wherein
said airfoil shape lies in an envelope within ±0.150
inches in a direction normal to any airfoil surface
location.

4.   A turbine bucket according to Claim 1 wherein
the height of the bucket airfoil from Z=0 to Z=1.0 is
22.211 inches.

5.   A turbine bucket including a bucket airfoil
having an uncoated nominal airfoil profile substantially
in accordance with Cartesian coordinate values of X, Y
and Z set forth in Table I wherein the Z values are
non-dimensional values from 0 to 1 convertible to Z
distances in inches by multiplying the Z values by a

height of the airfoil in inches, and wherein X and Y are distances in inches which, when connected by smooth continuing arcs, define airfoil profile sections at each Z distance, the profile sections at the Z distances being joined smoothly with one another to form a complete airfoil shape, the X and Y values being scalable as a function of the same constant or number to provide a scaled-up or scaled-down airfoil.

6.   A turbine bucket according to Claim 5 forming part of a fourth stage of a turbine.

7.   A turbine bucket according to Claim 5 wherein said airfoil shape lies in an envelope within ±0.150 inches in a direction normal to any airfoil surface location.

8.   A turbine bucket according to Claim 5 wherein the height of the bucket airfoil from Z=0 to Z=1.0 is 22.211 inches.

9.   A turbine comprising a turbine wheel having a plurality of buckets, each of said buckets including an airfoil having an airfoil shape, said airfoil having a nominal profile substantially in accordance with Cartesian coordinate values of X, Y and Z set forth in Table I wherein the Z values are non-dimensional values from 0 to 1 convertible to Z distances in inches by multiplying the Z values by a height of the airfoil in inches, and wherein X and Y are distances in inches which, when connected by smooth continuing arcs, define the airfoil profile sections at each distance Z, the

profile sections at the Z distances being joined smoothly with one another to form a complete airfoil shape.

10. A turbine according to Claim 9 wherein the turbine wheel comprises a fourth stage of the turbine.

11. A turbine according to Claim 9 wherein the turbine wheel has 88 buckets and X represents a distance parallel to the turbine axis of rotation.

12. A turbine according to Claim 9 wherein the height of the bucket airfoil from Z=0 to Z=1.0 is 22.211 inches.

13. A turbine according to Claim 9 wherein the radial height between an axial centerline of said turbine wheel and a hub radius of each bucket airfoil at a leading edge thereof is 39.521 inches, the non-dimensionalized Z value at Z=0.000 starting at a radial height 40.635 inches from the axial centerline of the turbine wheel.

14. A turbine according to Claim 13 wherein the height of the bucket airfoil from Z=0 to Z=1.0 is 22.211 inches.

15. A turbine comprising a turbine wheel having a plurality of buckets, each of said buckets including an airfoil having an uncoated nominal airfoil profile substantially in accordance with Cartesian coordinate values of X, Y and Z set forth in Table I wherein the Z values are non-dimensional values from 0 to 1 convertible to Z distances in inches by multiplying the Z values by a

height of the airfoil in inches, and wherein X and Y are distances in inches which, when connected by smooth continuing arcs, define airfoil profile sections at each distance Z, the profile sections at the Z distances being joined smoothly with one another to form a complete airfoil shape, the X and Y distances being scalable as a function of the same constant or number to provide a scaled-up or scaled-down bucket airfoil.

16. A turbine according to Claim 15 wherein the turbine wheel comprises a fourth stage of the turbine.

17. A turbine according to Claim 15 wherein the turbine wheel has 88 buckets and X represents a distance parallel to the turbine axis of rotation.

18. A turbine according to Claim 15 wherein the height of the bucket airfoil from Z=0 to Z=1.0 is 22.211 inches.

19. A turbine according to Claim 15 wherein the radial height between an axial centerline of said turbine wheel and a hub radius of each bucket airfoil at a leading edge thereof is 39.521 inches, the non-dimensionalized Z value at Z=0.000 starting at a radial height 40.635 inches from the axial centerline of the turbine wheel.

20. A turbine according to Claim 19 wherein the height of the bucket airfoil from Z=0 to Z=1.0 is 22.211 inches.